



Reading the Desert's Stones: Archaeology in Big Bend National Park

Nearing the end of another sweltering day of fieldwork in Big Bend National Park, the sun bearing down in its relentless march across the sky, two archaeologists slogged up a low hillside looking for clues. Wiping the sweat from their brows, they saw a linear alignment of rocks that, at first, appeared to be just another old two-track road. Or was it? They followed the serpentine line as it snaked uphill until it intersected a second line of rocks to form a large V-shaped figure. Blinking in disbelief, they realized what they had stumbled upon was not a road at all, but a rare prehistoric feature known as a petroform (a deliberate arrangement of rocks on the ground).

A rush of excitement washed over them as they hurried upslope to further discoveries: a small ring of stones and three circular “pavements” of limestone cobbles. Clearly, the petroform was not an isolated phenomenon. Alerting the crew, the team of archaeologists fanned out to comb over the site. Almost immediately a crew member found a projectile point, and then a second one. The rest of the crew rushed over and, within a few minutes, they had identified seven contracting-stem dart points within a two-meter area. By all appearances, the team had discovered a 4,000-year-old dart point cache!

The discovery of the Lizard Hill cache—as it came to be known—eventually produced a total of 13 projectiles



Medicine wheels, like this one, are a rare type of petroform, two of which were documented during the project.

and served as the highlight of a long and arduous cooperative project between the CBBS and the National Park Service that spanned more than ten years. As the biggest archaeological survey in the state's history in the most iconic part of Texas, the Big Bend National Park Project was a study in superlatives. Over the course of nearly 30,000 person-hours of fieldwork, crews surveyed more than 60,000 acres (roughly 8 percent of the entire park), discovering more than 1,400 new sites and collecting more than 2,000 artifacts, most of which were temporally or functionally diagnostic. As a result of its breadth and scale, by the time fieldwork was complete the project could boast having made one of the greatest archaeological contributions in the region's history.

In addition to many hundreds of feature and artifact types commonly found across the region, the project also yielded archaeological residue previously unknown to science, including a new type of thermal feature (the cobble-lined hearth), a variety of zoomorphic, anthropomorphic, and

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Crew members record prehistoric stone structures at the Cuesta Arriba site in the far western portion of Big Bend National Park.

abstract petroforms, ritual and utilitarian artifact caches, unusual tool forms, and exotic ceramics—some from as far away as the Gulf Coast. Diagnostic artifacts recovered indicated human occupation spanning at least 10,000 years. Site complexity was similarly broad, ranging from a single hearth or artifact scatter to prehistoric structures with contiguous room blocks and lithic procurement areas spanning more than a square mile.

Analysis

Although both historic and prehistoric sites were amply represented, almost 75 percent of the documented sites were exclusively prehistoric. By contrast, only 4 percent of the sites were exclusively historic; and 22 percent had both historic and prehistoric components. However, because the most persistent academic questions pertain to the prehistoric record, analyses focused on sites from this lengthy period. Many aspects of material culture were examined, but the analysis focused on site size, content, spatial distribution, and temporal affiliation.

Accordingly, sites were organized by the time period during which they were occupied and the environmental zone in which they occurred. This distribution was then compared to expected values, the assumption being that sites “should be” uniformly distributed across the landscape such that the number of sites in any given zone should be proportionate to the area surveyed within that zone. Thus, if 20 percent of the survey acreage occurred in the uplands, all things being equal, we should expect to find 20 percent of sites in that zone. If those two figures diverged, it suggested the uplands were more or less attractive as a campsite during the time period in question.

Summary of Findings

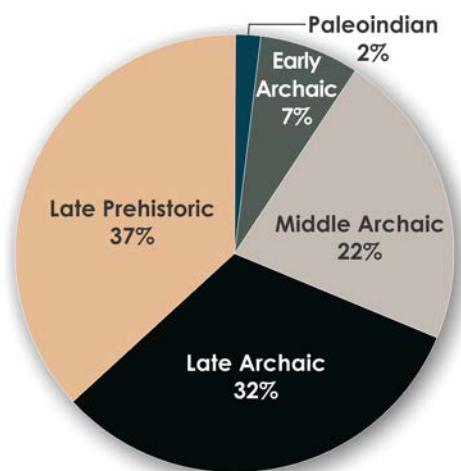
The results of analyses provided some of the first scientifically derived, testable hypotheses ever produced on archaeological data in the park. And some of those findings were surprising. One thing that became clear was that instead of a steady, predictable progression, social and technological change remained complex and often non-linear throughout prehistory—notably in matters of population density, social structure, site distribution, and subsistence strategy.

The earliest cultural materials recovered during the project dated to the Late Paleoindian period (ca. 10,200–6500 B.C.). Here we found the data supported prevailing beliefs that groups during this time tended to be small and highly nomadic and that their adaptation was focused on lowland areas which, during the much wetter early Holocene, may

have offered the best suite of resources.

Adaptive strategies seem to have changed during the Early Archaic (ca. 6500–2500 B.C.), which coincided with the Holocene Climatic Optimum (a warm period around 7,000 years ago), when higher elevation landforms were preferred. Although population levels seem to have been significantly higher than in the Paleoindian period, group size appears to have remained small and highly mobile. Technological adaptations may have included the cobble-lined hearth, a new feature type that could be restricted to this period, possibly reflecting specific resource processing.

During the Middle Archaic (ca. 2500–1000 B.C.), the data suggest something of a cultural flowering that, in many aspects of prehistoric behavior, far exceeded periods both before and after. Middle Archaic sites indicate a substantial increase in both population and group size, possibly with large seasonal aggregations. The period also witnessed an increase in the use of earth-oven technology (subterranean cooking), possibly signaling more intensive use of succulents (desert plants that retain water). The wide variety in size and type of



Chronology: Percentage distribution of temporally diagnostic projectile points.

From the Director...

These are great times for the Center for Big Bend Studies! We are on the heels of our 2016 annual conference—a huge success with a record number of great presenters on a wide range of topics. In fact, since publishing our Summer 2015 *La Vista de la Frontera*, we've had two well-attended conferences with entertaining banquet presentations by Ambassador of Spain Miguel Angel Mazarambroz (“Bernardo de Galvez: Spanish Hero of the American Revolution”) in 2015 and Mary Margaret McAllen (“Maximilian and Carlota: Europe's Last Empire in Mexico”) most recently. Additionally, on the eve of the 2015 conference we were treated to an advance viewing of the documentary movie *Texas Before the Alamo* by filmmaker Bill Millet. We also have good news to report regarding fundraising, staff, field projects, and publications, as well as new international collaborations.

Fundraising remains an integral part of my job, and I can report many successes. Grants by The Brown Foundation, Inc. of Houston in fall 2015 and fall 2016 were especially important. We also received significant contributions from the George and Cynthia Mitchell Foundation, the Still Water Foundation, Wayne and Jo Ann Moore Charitable Foundation, and the Texas Historical Foundation, as well as from entities (the Texas Preservation Trust Fund and the City of Alpine), and individuals (Jeff Fort, the Duncan Family Fund, the Shelburne Family Fund, and Kim and Annchen Lawrence). These allowed us this past summer to “restock” staff lost recently through attrition (see page 13).

Field projects continue to uncover significant data on the prehistoric and historic occupants of the region. Our efforts on the 02 Ranch remain focused on the Genevieve Lykes Duncan (GLD) site and Perdiz Trail. Work at GLD has slowed as the block excavation nears completion; further excavation plans include deep testing and efforts in an adjacent block. We are about finished with an article on the first phase of work at GLD, and it is scheduled for publication in the 2016 *Journal of Big Bend Studies* (JBBS). At Perdiz Trail—a shallowly buried campsite approximately 500 years old—our most recent excavations revealed tantalizing evidence of a stoneless wickiup; further efforts there are in the planning stage. A select handful of sites on Pinto Canyon Ranch have been the focus of our investigations over the last 18 months (see page 8). Investigations of rock imagery at several sites in the Black Hills of Chalk Draw Ranch have revealed very possible archaeo-astronomy relationships (see page 7).

In addition to Volume 28 (2016) of the JBBS, we have three publications that are nearing completion. David Keller is lead author of the massive Big Bend National Park report (see cover story). Due to its sheer size and our desire to widely share these data, we plan to publish the report on our website. David is also the author of a book on the history of Pinto Canyon entitled *In the Shadow of the Chinatis: Pinto Canyon in the Big Bend of Texas*, which is being published by Texas A&M Press. Associate Andrea J. Ohl is the author of *Middle Archaic People of Eastern Trans-Pecos Texas: Their Life and Times*, a book that synthesizes the Middle Archaic period (ca. 2500–1000 B.C.); it is slated for publication in our Trans-Pecos Archaeological Program series.

And finally, I am excited to report that through a revival of La Junta de los Ríos research we are on the cusp of collaborative arrangements with two federal agencies in Mexico (the *Archivo General de la Nación* [AGN] and the *Instituto Nacional de Antropología e Historia* [INAH]), while also initiating a relationship with archivists in Spain. I have proposed the La Junta Collaborative Project to focus on the Spanish mission period (ca. A.D. 1683–1760), initially through an extensive search in the various archives of Mexico and Spain (original documents from the Spanish period were curated in Mexico and copies were sent to the King in Spain), then through archaeological investigations on both sides of the border. Ultimately, the plan is for the various collaborators to jointly publish findings from the project.

Through these activities and initiatives, the Center continues its march forward to unlock forgotten or unknown parts of the history and prehistory of the greater Big Bend region. These efforts can be very difficult and slow paced, but successes, of which there have been many, keep us on task!

—William A. Cloud



CBBS Director Cloud (back center) during a recent visit to INAH headquarters in Chihuahua City. Others include filmmaker Bill Millet (back left) and INAH Chihuahua Director Jorge Carrera (front right).

CBBS INVESTIGATES

ENIGMATIC PREHISTORIC TOOL FROM COAHUILA

An enigmatic Late Prehistoric tool found in dry caves and on the margins of ancient lakebeds of the Bolsón de Mapimí and Laguna Basin in Coahuila is under scrutiny by CBBS researchers. The utilitarian implement has been generically termed *raspadores enmangados*, or “sleeved scrapers” (i.e., attached by means of a “sleeve” at the working end of the handle), and *raspadores con espigas*, or “scrapers with spikes.” The tool was brought to the attention of the scientific community in the 1950s by Mexican archaeologists working at the renowned mortuary site of Cueva de la Candelaria northeast of Torreón, Coahuila. In 1956, Aveleyra Arroyo de Anda et al. of *Instituto Nacional de Antropología e Historia* (INAH) discussed the distinctive tool form and suggested it was virtually unique to the Chihuahuan Desert of north-central Mexico. Despite environmental similarities, this type of implement has not yet been found in archaeological deposits along or north of the Rio Grande in Texas.

The artifacts consist of long, split sotol stalk handles tipped with unusually delicate unifacial (rarely bifacial) stone scrapers (Figure 1). The thin stone tips—commonly side-notched to accommodate the binding—were inserted into split or notched ends on the handles and wrapped tightly with small-diameter sinew or fiber cordage. A thick, black adhesive of asphaltum or resin was then applied over the binding

to further strengthen the hafts and minimize movement of the tips during use (Figure 2). Morphological variations of the stone tips and examples from the Laguna de Mayrán in Coahuila are described by Hester (1971).

The combination of a long (up to 80 cm), soft-wood handle and a small, delicate stone tip, has led researchers to speculate on how the tools were used by prehistoric hunters and gatherers. In a 1974 letter to Thomas Hester, longtime INAH researcher Beatrice Braniff wrote, “. . . these notched end-scrapers must have been dedicated to very fine functions both because of their small size and refined production, as well as because they are hafted on a delicate stem.” Aveleyra Arroyo de Anda et al. (1956) described the scrapers as “. . . remarkable on account of their strange shape, as if . . . inspired by the thumb-nail” and considered them to be diagnostic artifacts of the peoples who buried their dead in Cueva de la Candelaria.

Noting that the long, narrow, sometimes-curved handle would have allowed insertion of the tool into a small orifice, Aveleyra Arroyo de Anda et al. (1956) speculated it was used to remove pulp from gourds to facilitate their use as containers, or possibly to extract animal brains for use in the tanning of hides. Other hypothesized functions include

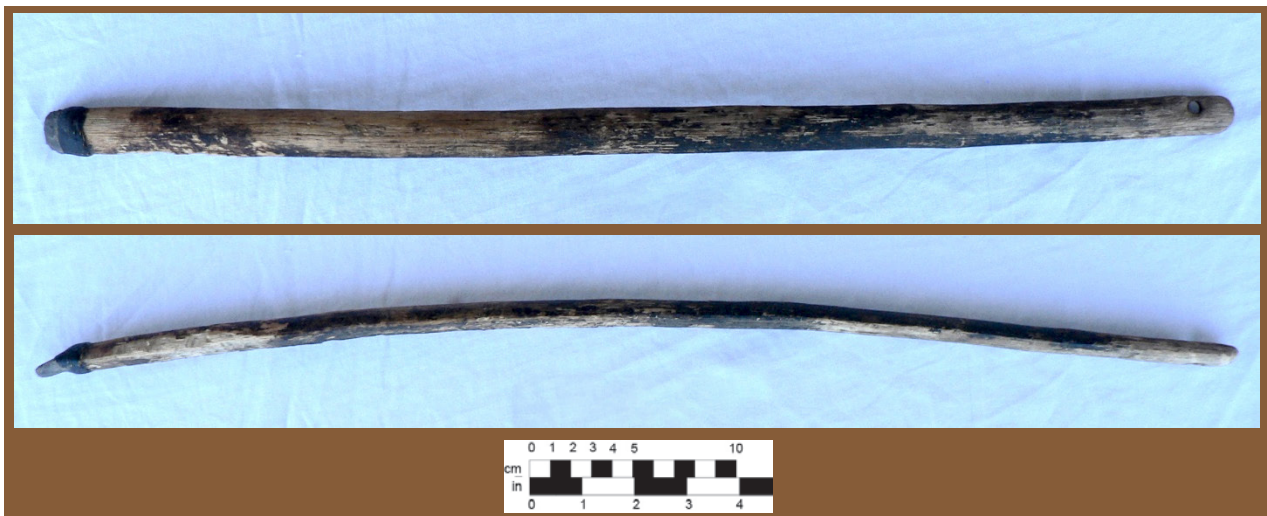


Figure 1. Dorsal and profile views of Coahuila hafted scraper. Note curvature of handle.

extracting honeycomb from beehives. According to both archaeological accounts and informants, the notched stone tips tend to be concentrated along the peripheries of ancient lakebeds (*pozas*), thus adding to the riddle of tool function.

To understand the form and function of these intriguing tools, the CBBS has documented over 120 of the scraper tips—possibly from a cache—in a private collection procured during the 1950s. In addition, chemical analysis of residues on the tip and handle of one intact composite tool has been undertaken. Findings thus far are inconclusive, but one hypothesized use—the collecting of honey—appears unlikely. Current data suggest the tools were used primarily in the processing of desert plants (Gemert et al. 2007). Based on analogy and experimentation, Aveleyra's original suggestion that they were designed for the removal of pulp in making gourd containers seems most logical. Explanations for the absence of this tool from Chihuahuan Desert sites north of the Rio Grande in Texas are not yet forthcoming.

—Robert J. Mallouf

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Aveleyra Arroyo de Anda, Luis, L.M. Maldonado-Cordell, and P. Martinez del Rio

1956 *Cueva de la Candelaria: Memorias del Instituto Nacional de Antropología e Historia*, Volume 1, Mexico.

Beatrice Braniff to Thomas R. Hester

18 March 1974

On file, Center for Big Bend Studies, Sul Ross State University.

Gemert, Janine Van, Julie Stambek, Robert Mallouf, Marvin Rowe, and Ruth Ann Armitage

2007 Characterization of a Use Residue on a Unique Stone Tool from the Coahuila Desert. Poster exhibit presented at International Symposium on Archaeometry.

Hester, Thomas R.

1971 Hafted Unifaces from Southwestern Coahuila, Mexico. *The Kiva* 36(4):36–41.



Figure 2. Detail of sinew and asphaltum or resin haft—dorsal and profile views.

Ellen Sue Turner Memorial Fund

Ellen Sue Turner made many contributions to Texas archaeology, including tireless research of the many projectile point types (dart and arrow points) in the state. She continues to contribute to Texas archaeology through the Ellen Sue Turner Memorial Fund, which supported the salaries of our summer interns—Juan “Kiko” Morlock (2015) and Lindsey Griffin (2016).

Please visit our website (<http://cbbs.sulross.edu>) to learn more about the fund or to donate. Or use the CBBS store on page 15 of this newsletter to make your donation. Call 432-837-8179 for more information.



Ellen Sue Turner

Thank You!

The CBBS extends sincere thanks to foundations and individuals who have provided support since publication of the last newsletter (Summer 2015). These contributions have played significant roles in our many achievements. Listed below are all contributors based on a cumulative total.

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Texas Historical Foundation Vice President Bruce Elsom, left, presents a check to CBBS Director Andy Cloud.

Rock Art of the Black Hills and the Prehistoric Sky

A 2006 survey in the Black Hills of central Brewster County recorded 29 rock art sites. Almost all of the imagery is petroglyphic, in the style known as Desert Archaic Abstract. There are no recognizable quadrupeds and only one biped—a probable anthropomorph; but several petroglyphs depict circular, human-like faces wearing conical hats, with some facial features represented by natural rock features. Rock art at two of the recorded sites may have been influenced by observers of the prehistoric sky.

In a narrow (1.5-meter-wide) alcove at the Beehive site in the western Black Hills, a two-ringed concentric circle is carved into the vertical face of the alcove. This intrigued longtime CBBS volunteer and avocational astronomer Benny Roberts; and on the 2016 summer solstice (June 20), Benny, his wife Gena, and CBBS staff archaeologist Roger Boren gathered at the site to observe the sunlight and shadows cast upon the rock art. At around 7:00 p.m., sunlight entered the shady alcove. For the next hour, they watched as the light touched the rock art panel and progressed over it, moving across the circles until both were bathed in light. At this position, the combination of sunlight, shadow, and rock art revealed the profile of a face wearing a conical hat—with a google eye represented by the concentric circles and an ear represented by a crack in the rock (Figure 1). This image was remarkably similar to the aforementioned Black Hills petroglyphs (Figure 2). On subsequent trips to the site (July 10 and September 22, the autumnal equinox), sunlight did not touch the panel, suggesting that the petroglyph is a summer-solstice solar marker.



Figure 1. Summer-solstice solar marker: Beehive site, western Black Hills.

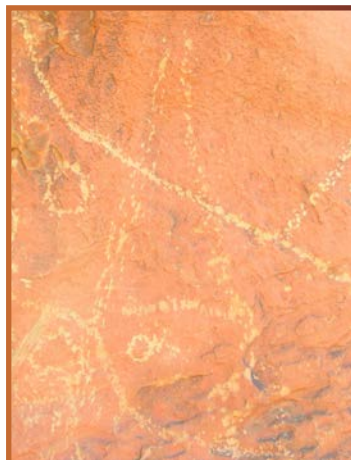


Figure 2. Representative Black Hills petroglyph: human-like face wearing conical hat.

In the eastern Black Hills, the Pecked Cupule site consists of 23 cupules and several grooved lines carved into a large, flat-lying, sandstone boulder spall (Figures 3, 4). During a recent examination of the site, Benny spotted similarities between the pattern formed by seven of the cupules and that formed by the stars representing the front portion of the Scorpius constellation (Figure 5, page 12).



Figure 3. Archaeologists examine pecked cupule patterns on boulder spall. Pecked Cupule site, eastern Black Hills.



Figure 4. Longtime CBBS volunteer Benny Roberts uses his laptop to illustrate similarities between pecked cupules on boulder spall (foreground) and the Scorpius constellation.

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Pinto Canyon Ranch

Introduction

In the Chinati Mountains near the southern boundary of the 63,000-acre Pinto Canyon Ranch (PCR), the CBBS is excavating in deeply buried deposits that range in age from Late Paleoindian to Late Prehistoric times. Of special interest are two sites—Gateway Terrace and Cerro Hueco—where thick Middle Archaic deposits representing successive occupations can step us through portions of the 1,500-year period. Another remarkable aspect of the archaeological landscape of PCR is the prevalence of stone-based architecture and structures in a variety of settings. Through focused excavations of buried deposits and innovative documentation of stone structures, we expect to study cultural change over time and develop a more complete understanding of the lives of these early inhabitants.

Gateway Terrace

During a 2013 reconnaissance survey, CBBS personnel discovered several thermal features eroding from the terrace of a major drainage. Small-scale testing and radiocarbon dates of charcoal associated with the hearths and earth-ovens indicated prehistoric activities ranging from the Middle Archaic to Late Prehistoric periods. Radiocarbon dates from five subsequent exploratory excavations across the 7,500 m² site included Early Archaic dates as well. Thus, Gateway Terrace is a multicomponent site comprising remnants of multiple occupations spanning as much as 8,000 years of prehistory.

A unique characteristic of Gateway Terrace is its thick (one meter) strata of buried Middle Archaic deposits, which capture a range of occupations. In fact, it is the only such site ever discovered in the greater Big Bend region. Excavation



An overview of CBBS excavations of Middle Archaic components at Gateway Terrace.

is underway. The general time frame has been determined through stratigraphic relationships, additional radiocarbon dating of charcoal, and two projectile point fragments whose morphologies appear to match Middle Archaic technology identified elsewhere in the Big Bend. In addition to a variety of stone features, excavation has yielded remnants of tool manufacture, including groundstone, which provide clues to technological development.

Cerro Hueco

On a similar landform about four miles up-drainage from Gateway Terrace lies the Cerro Hueco site, which was discovered by John Greer in 1977 (Greer et al. 1980). Over successive CBBS field visits, numerous projectile points and point fragments representing up to 8,000 years of occupation were identified on the surface. Five exploratory excavations yielded radiocarbon dates ranging from the Early Archaic to Late Archaic and exposed artifacts, features, and archaeological debris as deep as 70 centimeters below the surface.

In 2015, we began to investigate an intact Middle Archaic occupation that lies a mere 10 centimeters below the surface. The deposits are rich in artifacts, which include



CBBS Staff Archaeologist Taylor Greer documenting a Middle Archaic thermal feature at Gateway Terrace.

Window to the Past

projectile points and point fragments, bifaces, debitage and modified debitage, and small bone fragments. The thermal features in this excavation differ substantially in shape, size, and complexity from those at Gateway Terrace; this may imply that they had different functions. The Middle Archaic age of these deposits is based on radiocarbon dates of charcoal taken from the basal layer of fire-cracked rock in a thermal feature and a similarly associated, diagnostic projectile fragment. We expect the abundance of artifacts and features at Cerro Hueco to complement our work at nearby Gateway Terrace.

As with Gateway Terrace, Cerro Hueco offers exemplary opportunities beyond the Middle Archaic. Charcoal from deep deposits adjacent to the ongoing excavation yielded an Early Archaic radiocarbon date, the oldest yet documented on the ranch. Moreover, volunteer Gena Roberts discovered a projectile point with characteristics of Late Paleoindian technology (possibly 11,000 years old) in situ near the base of a thick layer of deposits a stone's throw away from the excavation block.

Stone Structures

Over 250 stone structures have been identified at 120 sites in a variety of settings on the ranch. The structures, which often occur in groups, are typified by stone enclosures or "rock rings," many of which are presumed to be foundations for wickiups (thatch- or hide-covered domiciles). However, variations in size, shape (e.g., round, oval, linear), and complexity imply a range of functions that include defense, ritualism, and storage. In 1980, Robert Mallouf provided the first substantial documentation of stone structures in the Big Bend of Texas and adjacent Mexico. He formulated the anthropological taxon *Cielo complex* from patterns of stone-ring architecture and specific feature and artifact associations dating to A.D. 1250–1680.

Excavations at two sites are shedding new light on stone structures across the PCR. In 2015, students at the CBBS-hosted Sul Ross State University archaeological field school helped excavate a multi-course stone enclosure at the Sundown site. Charcoal from the enclosure, which ap-

pears to be semi-subterranean, yielded a radiocarbon date of A.D. 770–900. In 2014, charcoal from an excavated stone ring at the Anilla Plata site provided a date of A.D. 1040–1220. Both of these dates are earlier than the conventional time frame of the *Cielo complex* (Mallouf 1999:65), although the latter is close. No age-diagnostic artifacts have been uncovered from either structure.

As we explore stone structures throughout the ranch, a distinctive pattern consistent with Mallouf's observations (1999) else-

where in the Big Bend is apparent: namely, clusters of structures atop precipitous landforms, such as mesas, buttes, and isolated knolls. In 2015, we began documenting sites and features with innovative

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Pinto Canyon Ranch Radiocarbon Dates

Conventional Date (B.P.)*	Calibrated Date [†]	Period
Gateway Terrace		
590 +/- 30	A.D. 1360	Late Prehistoric
720 +/- 30	A.D. 1310	
930 +/- 30	A.D. 1095	
2580 +/- 40	685 B.C.	Late Archaic
3250 +/- 40	1530 B.C.	Mid. Archaic
3470 +/- 30	1810 B.C.	
3580 +/- 40	1910 B.C.	
3590 +/- 40	1950 B.C.	
3600 +/- 40	1955 B.C.	
4270 +/- 40	2905 B.C.	Early Archaic
4600 +/- 40	3320 B.C.	
Cerro Hueco		
2520 +/- 40	660 B.C.	Late Archaic
3690 +/- 30	2080 B.C.	Mid. Archaic
6850 +/- 40	5745 B.C.	Early Archaic
7420 +/- 40	6310 B.C.	

* Assays by International Chemical Analysis.

† Calibrated dates are midpoints in the highest-confidence 2-Sigma range (e.g., 87%).



Untyped Late Paleoindian point recovered at Cerro Hueco.



Recent excavations underway at Cerro Hueco showing shallow Middle Archaic feature (left) and deep test unit (right) exposing earlier materials.

Preserving History in the Big Bend

Through partnerships with Big Bend National Park, the Presidio County Historical Commission, the City of Presidio, and a local archaeological steward, the CBBS is helping to protect historic structures and sites across the greater Big Bend region.

Big Bend National Park (BBNP)

A proposal to document and restore historic structures in BBNP was submitted by park Registered Professional Archeologist (RPA), Staff Archaeologist, and Cultural Resources Program Manager Connie Thompson Gibson to the Southwest Border Resource Protection Program. The proposal seeks funding for the first year of an aggressive five-year project. Eight structures are targeted for the first year, including five listed in the National Register of Historic Places: the Hernandez-Alvino House at Castolon; the Livingston House, Postman's Shack, and motel at Hot Springs; and the Sublett Farm House (Rancho Estelle) on the Rio Grande. Others under consideration include the Sam and Nena Nail adobe ranch house, the U.S. Cavalry Camp granary in the Castolon Historic District, and the Homer Wilson Ranch. Selections will be based on factors that include historic significance, condition, accessibility, and logistical considerations.

As co-principal investigator in the proposal, CBBS Senior Project Archaeologist David Keller will work with Gibson to assess and document baseline conditions, develop restoration plans, and oversee and document all repair, stabilization, and restoration work. In conjunction with adobe and earth-plaster specialists, the project will improve safety and visitor access while preserving historically invaluable resources. If the proposal is accepted, work will begin in 2017. "The alternative," Gibson states in the proposal, "is to continue on the path to total loss and destruction of hundreds of historic buildings and features that represent the story of the Old West in the heritage of our American nation."

Ruidosa Church

One of the most exciting developments in recent months is the revival of the Ruidosa Church project. Boasting perhaps the largest traditional adobe arches in Texas, *El Corazon Sagrado de la Iglesia de Jesus*, Ruidosa was built by local townspeople in the early 1900s and used for decades for weddings, funerals, and Sunday mass. As the town's population dwindled in the 1950s and 1960s, the church fell into disuse and began to deteriorate. By 1991, it was in such poor condition that the Catholic Diocese of El Paso slated it for demolition. Public outcry, however, forced them to reverse their decision.

In 2006, through grants from the Texas Historical Commission (THC) and others, the church was stabilized and part of the left front tower was rebuilt. However, due to funding shortages, the project was abandoned and the church was, once again, left to the forces of nature.

This year, the diocese agreed to deed the church to Presidio County. This is a critical first step toward creating the Friends of the Ruidosa Church—a dedicated 501(c)3 organization that will be able to raise funds through tax-deductible donations. In the coming months, the CBBS will partner with the Presidio County Historical Commission and Presidio County to develop a restoration plan and fundraising strategy for this historically and architecturally significant vernacular structure.



The Ruidosa Church ca. 1963 before its deterioration became advanced.

Concordia Cemetery, Shafter

When new residential construction threatened possible graves adjacent to the historic Concordia Cemetery in the silver-mining town of Shafter, THC archaeological steward Monroe Elms alerted the CBBS. A crew was quickly deployed to assess potential impacts and, in the process, discovered that the THC lacked formal documentation of the cemetery.



Two images of the Alvino House—one of several structures that will be examined during the Big Bend National Park restoration project.



This prompted the crew to properly record the cemetery and register it with the state. Although some burials were identified beyond the confines of the designated cemetery, the crew was able to determine that the new construction did not appear to be damaging the graves, some of which date back to the 1880s.

Right: Ornate metal cross at the grave of J. Sloan Sr.—one of several graves located beyond the confines of Concordia Cemetery in Shafter.

Below: White metal crosses and robust cairn burials mark Concordia Cemetery.



El Mulato native Oscar Rodriguez and Marfa native Jerry Lujan look at concrete crypts at El Cementerio del Barrio de los Lipanes in Presidio.

nomadic Lipan Apaches during the waning days of the La Junta Pueblos in the late eighteenth and early nineteenth centuries. Soon after being alerted about the cemetery in 2014, the CBBS scientifically documented the site, registered it with the state, and facilitated its designation as a State Archeological Landmark (Keller 2015).

In response to ongoing concerns of vehicular impacts to the cemetery, which is situated adjacent to an alley in a residential part of town, CBBS staff asked the Presidio City Council to address the issue. The council unanimously agreed to close the alley and pledged to work with the CBBS to further protect and enhance the site as part of an ongoing collaboration to preserve the city's prominent historical legacy.

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El Cementerio del Barrio de los Lipanes, Presidio

For several years, the CBBS has worked to protect *El Cementerio del Barrio de los Lipanes*—one of the oldest cemeteries in the region. The small, primitive cemetery is located in a part of Presidio that may have served as a campsite for

In Memoriam: Mozelle Jeffrey

Mozelle Jeffrey became involved with the CBBS in 2009 when she asked us to investigate prehistoric cultural features on her property in south Brewster County. In early 2010 we aerial-mapped Mozelle's property the old-fashioned way, using kites and a helium blimp. Soon after, we excavated several of the thermal features (hearths) located near her home.

Mozelle was fascinated with archaeology and prehistoric cultures, and she began volunteering in our J. Charles and Ellen A. Kelley Memorial Library in October of 2012. She soon took over the creation of a special section dedicated to housing all of the Kelley manuscripts and publications. Mozelle was as passionate about her work at the CBBS as she was about life in general. She brought laughter and joy to work with her and was a friend to everyone she met.

A couple of years ago, Mozelle purchased a second home in North Carolina to be near her daughter during the hot summers, and that is where she passed away on July 23, 2016. She will be sorely missed as a dear friend and as a volunteer for the CBBS.



Roger Boren, Andrea Ohl, and Mozelle Jeffrey (right) at the Genevieve Lykes Duncan site.



CBBS crew sectioning circular structural remnant (wickiup) at Anilla Plata.

technology and 3D data-production techniques—drone aerial photography, photogrammetry, and Structure from Motion (Cason 2014). At one site of particular interest, we documented six structures atop a high, narrow ridge overlooking the Rio Grande floodplain and into the mountains of Mexico. A rockshelter on the slopes below the ridge attests to a domestic occupation though no such debris has been found around the ridgetop structures, suggesting they were used for some special purpose. Bolstering this impression, CBBS archaeologists Casey Wayne Riggs and Juan Morlock discovered a cache of three complete, expertly fashioned stone bifaces amidst what appears to be a toppled stone cairn situated just below the structures adjacent to an access route to the ridge summit.



Plan view (showing boulders after excavation) of one of the many circular, stone-based structures on the Pinto Canyon Ranch.

There is much yet to learn, and our efforts of documenting these unique features, sites, and landscapes are gaining momentum with the support of the PCR landowner and comparative research across the region. By combining traditional field methods with 3D data-production techniques, we hope to gain a better understanding of these complex, diverse, and widespread stone structures.

—Samuel S. Cason and Kay Plavidal

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Rock Art of the Black Hills and the Prehistoric Sky, continued from page 7.

Ethnographic studies suggest that the front half of Scorpius (i.e., excluding the stars representing the stinger) held significant meaning for Native Americans in the eastern U.S. and the Plains (Lankford 2007:240–256). An additional five cupules on the boulder are thought to represent the five brightest stars in the Pleiades star cluster. As viewed from the Pecked Cupule site on or about May 11 between ca. 2000 B.C. and A.D. 2000, the Pleiades star cluster rose above the horizon about one hour before the Sun in the eastern sky.

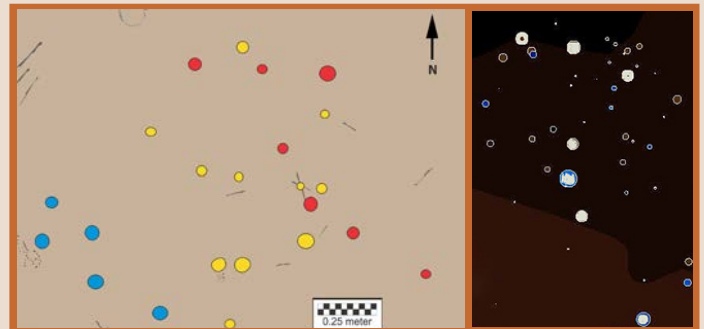


Figure 5. (Left) Color-coded schematic of Pecked Cupule rock art boulder, eastern Black Hills. Red: Scorpius constellation. Blue: Pleiades star cluster. Yellow: unreconciled cupules. (Right) Scorpius constellation. Image created by Roger Boren via Software Bisque SkyX Edition.

—Roger Boren and Benny Roberts

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New CBBS Staff

Taylor Greer

Taylor is from Austin. She received a B.A. in anthropology from Texas State University in San Marcos. During her time there, she participated in a field school in Belize and fell in love with archaeology. After graduation, her first job in her field was a dig with CBBS, where she met many like-minded people, explored the beautiful city of Alpine, and learned a lot about Texas archaeology. She then accepted a staff archaeologist position with the Center and made Alpine her new home. Her interests also include photography, music, and art.



majority of his experience is in the Southwest, primarily in the area of Tularosa, New Mexico. He hopes to continue volunteering with the JRI.

Bryon Schroeder

Bryon is our new project archaeologist. He recently received his Ph.D. in archaeology from the University of Montana with research focused on high-altitude hunter-gatherer sites in the Wind River Range of the Middle Rocky Mountains. He also holds both a B.A. and M.A. in archaeology from the University of Wyoming where he studied Late Prehistoric and Protohistoric hunter-gatherer refuge fortification and defensive structures. He has worked throughout Wyoming, Colorado, Utah, New Mexico, Montana, and most recently the Central Coast of California. His broader research interests focus on interpersonal conflict in hunter-gatherers across time and space, macroevolutionary models, and inheritance theory. He is a recent convert to Bayesian modeling specific to radiocarbon data. He is a blank slate when it comes to Texas archaeology and is excited to delve into the complexities of Trans-Pecos prehistory.



Lindsey Griffin

Lindsey has been a student worker/intern at the Center since attending the 2015 Sul Ross State University archaeological field school hosted by CBBS. She is an undergraduate at Sul Ross studying geology with a minor in anthropology and plans to graduate in 2018. From Amarillo, Texas, Lindsey moved to Alpine in the summer of 2013 with hopes to explore the Big Bend and the opportunities it offered. Going to the field school and working with the CBBS has opened the doors to much learning and experience in archaeology which Lindsey plans to apply in her further education.



Kay Plavidal

Kay is our new editor. She earned a B.S. in geology from the University of New Orleans and an M.S. in geology from the University of Utah, where she studied volcanic rocks similar in composition to those in the Davis Mountains. She worked as a geophysicist in the oil industry for five years before changing careers and moving to Austin to work as a technical writer. For 16 years, she documented hardware and software used in hydrocarbon exploration and in semiconductor manufacturing. In 2007, she left private industry to teach Environmental Science at Austin Community College. Yielding to a 23-year fascination with the Big Bend, she and husband Larry moved to Alpine in 2013. They love the small-town life, dry climate, and hiking in Big Bend National Park and the Davis Mountains.



Rodrigo Molina

Rodrigo, a native of El Paso, joined the Center as a staff archaeologist in July. In May of 2015 he graduated from The University of Texas at El Paso with a B.A. in anthropology and a minor in criminal justice. He began volunteering with the Jornada Research Institute (JRI) shortly after graduation. The





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The Center for Big Bend Studies fosters interdisciplinary scholarship of the diverse prehistoric, historic, and modern cultures of the borderlands region of the United States and Mexico, with emphasis on the area encompassed by Trans-Pecos Texas and north-central Mexico. The Center is committed to the recovery, protection, and sharing of this region's rich cultural legacy through dynamic programs involving research, education, public outreach, and publication.

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Archaeology in Big Bend National Park, continued from page 2.

sites also hints at increased specialization, including a rich spiritual life as suggested by the profusion of abstract petroforms and ritual caches, such as the Lizard Hill cache.

Adaptive patterns seem to have shifted by the Late Archaic (ca. 1000 B.C.–A.D. 700). Although human population levels appear to have continued to rise, the data suggest that group size declined significantly, possibly reflecting higher mobility and increased opportunism in foraging patterns. Sites from this period are also distributed more uniformly across the landscape than those from any other time period. Meanwhile, specialization seems to have decreased as sites became more uniform in size and composition. A possible decline in the use of earth ovens and an increase in the use of ring hearths (hearths “ringed” by a circle of rocks) further suggest changing subsistence strategies.

Both population levels and group size appear to have increased during the Late Prehistoric (ca. A.D. 700–1535) although the latter did not rise to the level observed during the Middle Archaic. Mobility seems to have declined from that of the Late Archaic and the lowlands assumed increasing importance, especially as base camps. Use of earth-oven technology as well as stone-based wickiups appears to have increased or were utilized in greater numbers within individual sites. Taken as a whole, the data reveals a continuum of prehistoric life that waxed and waned in adaptive strategies and complexity through time, likely reflecting broader climatic and socio-cultural shifts.

Conclusions

Although the results of analyses were far more nuanced than the above generalizations suggest, it is significant that most of these tentative, preliminary conclusions were derived from multiple analyses, which demonstrated greater consistency than chance alone would allow. This, in turn, bolstered confidence in both the data and in the veracity of results. But, in addition to what these results tell us about prehistoric human behavior, they also bear on prevailing concerns that surficial survey data cannot be subjected to analysis. The age-old wisdom holds that such data has less integrity than subsurface deposits as a result of natural and human-based impacts (such as erosion and casual artifact collecting).

Fortunately, the findings here suggest otherwise: that survey data can rise to the occasion, even if its accuracy must be conditioned by both the quality and quantity of the data. In other words, if enough high-quality survey data is collected, it can cut through the “noise” introduced by such impacts. In all, the Big Bend National Park Project was a pioneering effort that is helping to re-write the archaeological record of the Big Bend as we know it. And in learning to read the desert’s stones—the lithic legacy of bygone peoples—we have been afforded a rare glimpse into the rich cultural legacy of one of our greatest national parks.

Keep on the lookout for the official 800-plus-page report of findings from the Big Bend National Park Project, which will be available on our website upon completion.

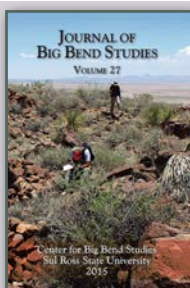
–David Keller

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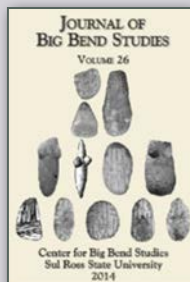
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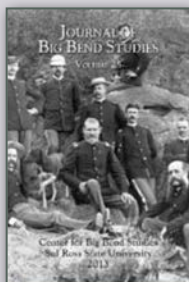
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